

L23 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2001 ACS
 AN 1997:456820 HCAPLUS
 DN 127:69375
 TI Small beam structure for vibration or displacement sensors and manufacture thereof
 IN Toda, Akitoshi; Matsuyama, Katsuhiro; Hata, Seiichi
 PA Olympus Optical Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G01D021-00
 ICS C22C045-00; G01B021-30; G01L001-18; G01N037-00; G01P015-12; H01L021-3065

CC 56-3 (Nonferrous Metals and Alloys)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09126833	A2	19970516	JP 1995-283624	19951031 <--
AB	The title structure has a support member and an elastic beam-like member supported by the support member. At least the beam-like elastic member is made of an amorphous alloy. The structure is manufd. by controlled heating followed by photolithog.				
ST	vibration displacement sensor beam structure				
IT	Heating Photolithography (in manuf. of small beam structure for vibration or displacement sensors)				
IT	Metallic glasses RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (in small beam structure for vibration or displacement sensors)				
IT	Sensors Vibration (small beam structure for vibration or displacement sensors and manuf. thereof)				
IT	124934-49-2, Aluminum 25, lanthanum 55, nickel 20 (atomic) 137458-95-8, Aluminum 7.5, copper 27.5, zirconium 65 (atomic) RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses) (in manuf. of small beam structure for vibration or displacement sensors)				

L23 ANSWER 3 OF 3 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1997-323546 [30] WPIX
DNN N1997-267690 DNC C1997-104513
TI Beam structure member made of amorphous alloy - is composed of retaining
and beam type elastic parts.
DC M26 M27 S02 U12
PA (OLYU) OLYMPUS OPTICAL CO LTD
CYC 1
PI JP 09126833 A 19970516 (199730)* 10p G01D021-00 <--
ADT JP 09126833 A JP 1995-283624 19951031
PRAI JP 1995-283624 19951031
IC ICM G01D021-00
ICS C22C045-00; G01B021-30; G01L001-18; G01N037-00; G01P015-12;
H01L021-3065
AB JP 09126833 A UPAB: 19970723
The beam structure is composed of a retaining part and a beam type elastic
part. The elastic part is made of at least amorphous alloy.
USE - Used for microsensor and micromachining.
ADVANTAGE - The conductive beam structure member has high hardness
and high toughness.
Dwg.1/7

FILE 'HCAPLUS' ENTERED AT 15:26:37 ON 26 JUN 2001

L1 158849 SEA ABB=ON PLU=ON (MATTER/CT OR "CONDENSED MATTER"/CT OR SOLIDS/CT OR "AMORPHOUS MATERIALS"/CT OR CERAMICS/CT OR "VITREOUS MATERIALS"/CT OR GLASS/CT OR "GLASS, NONOXIDE"/CT OR "GLASS, OXIDE"/CT OR "GLASSY STATE"/CT OR "VITREOUS STATE"/CT OR 2M5090Z/CT OR 4901H/CT OR "AP 5710"/CT OR "AMORPHOUS SUBSTANCES (L) GLASS"/CT OR "B 38/4000"/CT OR "BAH 71"/CT OR "BAL 41"/CT OR "BG 18"/CT OR BAFL/CT OR "CEF 048"/CT OR "CS 2-60"/CT OR "CS 2-62"/CT OR "CERAMIC MATERIALS AND WARES (L) GLASSES"/CT OR "DU PONT 56810"/CT OR "EBG 210"/CT OR "ESL-D 95233A"/CT OR "FMW 5W001"/CT OR "FRACTOSIL 25000"/CT OR "G 3-0428"/CT OR "G 3-0496"/CT OR "GA 1"/CT OR "GA 1 (GLASS)"/CT OR "GA 13"/CT OR "GA 13 (GLASS)"/CT OR "GA 44"/CT OR "GA 44

L2 211413 SEA ABB=ON PLU=ON ("ALUMINOBOROSILICATE GLASSES"/CT OR "BARIUM ALUMINOBOROSILICATE GLASSES"/CT OR "BK7 GLASS"/CT OR "BOROPHOSPHOSILICATE GLASSES"/CT OR "GLASS, OXIDE (L) ALUMINOBO ROSILICATE"/CT OR "GLASS, OXIDE (L) BOROPHOSPHOSILICATE"/CT OR "SODIUM BOROSILICATE GLASSES"/CT OR "GLASS, OXIDE (L) BOROSILIC ATE"/CT OR "CHALCOGENIDE GLASSES"/CT OR "GLASS, NONOXIDE (L) SELENIDE"/CT OR "GLASS, NONOXIDE (L) SULFIDE"/CT OR "GLASS, NONOXIDE (L) TELLURIDE"/CT OR "SELENIDE GLASSES"/CT OR

L3 440581 SEA ABB=ON PLU=ON (L1 OR L2) OR GLASS##/ST,TI OR AMORPHOUS/TI ,ST,ST

L5 907 SEA ABB=ON PLU=ON L3

L6 9812 SEA ABB=ON PLU=ON MICROMACHIN### OR MEMS OR MICROMECHANICAL## OR MICROELECTROMECH? OR MICRO(W) (ELECTROMECH? OR MECHANIC###)

L7 2 SEA ABB=ON PLU=ON L5 AND L6

L8 1527 SEA ABB=ON PLU=ON (DEFORM##### OR BEND#### OR TRANSFORM## ##### OR SOFTEN####) (W) POINT#(6A) (GLASS# OR AMORPHOUS)

L9 1081 SEA ABB=ON PLU=ON L3 AND L8

L10 0 SEA ABB=ON PLU=ON L9 AND L6

L11 0 SEA ABB=ON PLU=ON L8 AND L6

L12 26 SEA ABB=ON PLU=ON L8 AND THIN FILM

L13 16 SEA ABB=ON PLU=ON L12 AND DEGREE
D ALL TOT

L14 10 SEA ABB=ON PLU=ON L12 NOT L13
D ALL TOT

L15 921 SEA ABB=ON PLU=ON L3 AND L6

L16 13864 SEA ABB=ON PLU=ON (DEFORM##### OR BEND#### OR TRANSFORM## ##### OR SOFTEN####) (6A) (GLASS# OR AMORPHOUS)

L17 39 SEA ABB=ON PLU=ON L6 AND L16

L18 6 SEA ABB=ON PLU=ON L17 AND (DEG OR DEGREE)

FILE 'INSPEC' ENTERED AT 15:45:37 ON 26 JUN 2001

L19 16236 SEA ABB=ON PLU=ON MICROMACHIN### OR MEMS OR MICROMECHANICAL## OR MICROELECTROMECH? OR MICRO(W) (ELECTROMECH? OR MECHANIC###)

L20 25541 SEA ABB=ON PLU=ON (GLASS/CT FIBER REINFORCED COMPOSITES"/CT OR "GLASS FIBER REINFORCED PLASTICS"/CT OR "GLASS FIBERS"/CT OR "GLASS FIBRE REINFORCED

6/26/01

COMPOSITES"/CT OR "GLASS FIBRE REINFORCED PLASTICS"/CT OR
"GLASS FIBRES"/CT OR "GLASS FORMATION"/CT OR "GLASS INDUSTRY"/C
T)

E E3+ALL

L21 237462 SEA ABB=ON PLU=ON L20 OR (MATERIALS/CT OR GLASS/CT OR
GLASSES/CT OR "SILICATE GLASSES"/CT OR "ALUMINOSILICATE
GLASSES"/CT OR "BORATE GLASSES"/CT OR "BOROSILICATE GLASSES"/CT
OR "CHALCOGENIDE GLASSES"/CT OR "GERMANATE GLASSES"/CT OR
"GLASS CERAMICS"/CT OR "HALIDE GLASSES"/CT OR "FLUORIDE
GLASSES"/CT OR "METALLIC GLASSES"/CT OR "OPTICAL GLASS"/CT OR
"PHOSPHATE GLASSES"/CT OR "PHOSPHOSILICATE GLASSES"/CT OR
CERAMICS/CT OR "DIELECTRIC MATERIALS"/CT OR "GLASS FIBRES"/CT

L22 4810 SEA ABB=ON PLU=ON (DEFORM##### OR BEND#### OR TRANSFORM##
OR SOFTEN####) (6A) (GLASS# OR AMORPHOUS##)

FILE 'HCAPLUS, INPADOC, WPIX' ENTERED AT 15:50:51 ON 26 JUN 2001
E JP09126833/PN

FILE 'INSPEC' ENTERED AT 15:59:42 ON 26 JUN 2001
E MICROELECTROMECHANICAL DEVICES/CT

E E4+ALL/CT

L24 11215 SEA ABB=ON PLU=ON MICROELECTROMECHANIC? OR MICROMECHANIC? OR
MEMS

L25 17662 SEA ABB=ON PLU=ON MICRO MACHIN### OR MICROMACHIN### OR L24
OR MICRO ELECTROMECHANIC? OR MICRO MECHANIC?

L26 4277 SEA ABB=ON PLU=ON (DEFORM##### OR BEND#### OR TRANSFORM##
OR SOFTEN####) (4A) (GLASS## OR AMORPHOUS##)

L27 29 SEA ABB=ON PLU=ON L22 AND L24

L28 28685 SEA ABB=ON PLU=ON (535 K OR 536 K OR 537 K OR 538 K OR 539 K
OR 540 K OR 545 K OR 550 K OR 555 K OR 560 K OR 565 K OR 570 K
OR 575 K OR 580 K OR 581 K OR 582 K OR 583 K OR 584 K OR 585 K
OR 586 K OR 587 K OR 588 K OR 589 K)/TEMP

FILE 'INSPEC' ENTERED AT 16:12:08 ON 26 JUN 2001

L29 0 SEA ABB=ON PLU=ON L27 AND L28

L30 33 SEA ABB=ON PLU=ON L22 AND L25

L31 0 SEA ABB=ON PLU=ON L30 AND L28

L32 0 SEA ABB=ON PLU=ON L30 AND (500 K OR 510 K OR 520 K OR 530 K
OR 590 K OR 600 K)/TEMP

D L30 ALL TOT

FILE 'WPIX, JAPIO, JICST-EPLUS, CEABA-VTB' ENTERED AT 16:19:03 ON 26 JUN
2001

L33 10552 SEA ABB=ON PLU=ON (DEFORM##### OR BEND#### OR TRANSFORM##
OR SOFTEN####) (4A) (GLASS## OR AMORPHOUS##)

L34 1659 SEA ABB=ON PLU=ON MICROELECTROMECHANIC? OR MICROMECHANIC? OR
MEMS

L35 8189 SEA ABB=ON PLU=ON MICRO MACHIN### OR MICROMACHIN### OR L34
OR MICRO ELECTROMECHANIC? OR MICRO MECHANIC?

L36 9 SEA ABB=ON PLU=ON L33 AND L35
D ALL TOT
D MAX 1

L37 65 SEA ABB=ON PLU=ON L33 AND POINT AND THIN FILM AND SUBSTRATE

L38 65 SEA ABB=ON PLU=ON L37 NOT L36

6/26/01

L39 64 DUP REM L38 (1 DUPLICATE REMOVED)
L40 48 SEA ABB=ON PLU=ON L39 AND (TEMP OR TEMPERATURE OR DEG OR
DEGREE#)
D ALL TOT

FILE 'STNGUIDE' ENTERED AT 16:28:57 ON 26 JUN 2001

FILE 'DPCI' ENTERED AT 16:41:12 ON 26 JUN 2001
L41 0 SEA ABB=ON PLU=ON JP47042917/PN.D

FILE 'DPCI' ENTERED AT 16:41:22 ON 26 JUN 2001
L42 0 SEA ABB=ON PLU=ON JP47042917/PN.D, PN, PN.G

FILE 'DPCI' ENTERED AT 16:42:15 ON 26 JUN 2001
L43 0 SEA ABB=ON PLU=ON JP72042917/PN.D, PN, PN.G

FILE 'DPCI' ENTERED AT 16:42:24 ON 26 JUN 2001
L44 0 SEA ABB=ON PLU=ON JP72042917B/PN.D, PN, PN.G

FILE 'DPCI' ENTERED AT 16:42:32 ON 26 JUN 2001
L45 0 SEA ABB=ON PLU=ON JP7242917B/PN.D, PN, PN.G

FILE 'DPCI' ENTERED AT 16:42:38 ON 26 JUN 2001
L46 1 SEA ABB=ON PLU=ON JP7242917/PN.D, PN, PN.G
D ALL

FILE 'INSPEC, HCAPLUS, COMPENDEX, CERAB' ENTERED AT 16:43:50 ON 26 JUN
2001

L*** DEL 1 S GLASS SOFTENING(W) (PT OR POINT)
L47 127 SEA ABB=ON PLU=ON GLASS SOFTENING(W) (PT OR POINT)
L48 0 SEA ABB=ON PLU=ON L47 AND (MEMS OR MICRO OR MICROMACHIN? OR
MICROELECTROMACHIN?)
L49 3 SEA ABB=ON PLU=ON L47 AND THIN FILM
D ALL TOT
L50 162656 SEA ABB=ON PLU=ON PHYSICAL PROPERTIES
L51 449 SEA ABB=ON PLU=ON SOFTENING(W) (PT OR POINT) AND L50
L52 1 SEA ABB=ON PLU=ON L51 AND (MEMS OR MICRO OR MICROMACHIN? OR
MICROELECTROMACHIN?)
D ALL
L53 7 SEA ABB=ON PLU=ON L51 AND THIN FILM
D ALL TOT

L40 ANSWER 38 OF 48 JAPIO COPYRIGHT 2001 JPO
 AN 1988-221610 JAPIO
 TI MANUFACTURE OF **THIN FILM** SEMICONDUCTOR DEVICE
 IN YOSHIMURA MASAO; AOYAMA TAKASHI; KAWACHI GENSHIROU; KONISHI NOBUTAKE
 PA HITACHI LTD, JP (CO 000510)
 PI JP 63221610 A 19880914 Showa
 AI JP1987-54038 (JP62054038 Showa) 19870311
 SO PATENT ABSTRACTS OF JAPAN, Unexamined Applications, Section: E, Sect. No. 703, Vol. 13, No. 16, P. 34 (19890113)
 IC ICM (4) H01L021-20
 ICS (4) H01L021-324
 ICA (4) H01L029-78
 AB PURPOSE: To facilitate formation of an excellent polycrystalline silicon **thin film** with large crystal grains by a method wherein a **thin film** layer whose melting **point** or softening **point** is below an annealing **temperature** is provided between a glass **substrate** and the polycrystalline silicon this film and then the annealing is carried out. CONSTITUTION: An organic glass layer 3 is formed on a glass **substrate** 1 whose strain **point** is higher than 600. **degree**. and, after a polycrystalline silicon **thin film** 2 is formed on it, annealing is carried out at 600. **degree**.C. The organic glass layer 3 is made of material whose softening **point** is lower than 600. **degree**.C. As the material of the film between the glass **substrate** 1 and the polycrystalline **thin film** 2, tellurium dioxide, inorganic **glass** whose **softening point** is below an annealing **temperature** and so forth may be employed. The film 3 is in a fluid state or in a deformable state under the annealing **temperature** so that the **degree** of freedom of the silicon atoms of the polycrystalline silicon this film on the **substrate** side is not reduced and, like on the surface side, the sizes of crystal grains can be enlarged and the excellent polycrystalline **thin film** can be formed.

L40 ANSWER 4 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
 AN 1995-108167 [15] WPIX
 DNN N1995-085525
 TI Solar cell with cpd. semiconductor contg. heavy metals e.g. cadmium ,
 selenium , tellurium - uses low m.pt. glass on semiconductor
 layer surfaces to seal cell cpd. elements above thermal decomposition
 temp..
 DC U12 X15
 IN IKEDA, M; KOHARA, N; NEGAMI, T; NISHITANI, M; TERAUCHI, M; WADA, T
 PA (MATU) MATSUSHITA ELEC IND CO LTD; (MATU) MATSUSHITA DENKI SANGYO KK
 CYC 5
 PI EP 638939 A2 19950215 (199515)* EN 11p H01L031-0216
 R: DE FR GB
 JP 07086625 A 19950331 (199522) 7p H01L031-04
 US 5500056 A 19960319 (199617) 10p H01L031-04
 EP 638939 A3 19970820 (199745) H01L031-0216
 ADT EP 638939 A2 EP 1994-111166 19940718; JP 07086625 A JP 1994-162543
 19940715; US 5500056 A US 1994-274722 19940718; EP 638939 A3 EP
 1994-111166 19940718
 PRAI JP 1993-177882 19930719
 REP No-SR.Pub; 3.Jnl.Ref; JP 53138287; JP 59169955; US 3653970; US 4239553
 IC ICM H01L031-0216; H01L031-04
 ICS H01L031-0203; H01L031-072
 AB EP 638939 A UPAB: 19950425
 The solar cell includes laminated cpd. semiconductor layers, and has a low
 m.pt. glass layer formed on at least one surface, either
 partially or completely over the semiconductor layer top and-or bottom
 surface. Pref. the **glass** layer has a **softening**
 temp. lower than 500deg.C, with a 0.1-`.0`mm thickness.
 The glass layer may be either a PbO-B2O3-SiO2-Al2O3 or ZnO-B2O3-SiO2
 glass, formed by sputter deposition. A low m.pt. glass layer (2)
 may be formed on a glass **substrate** (1), with a similar cover
 layer (7). The cpd. semiconductor layers may be a CdS window layer (4) and
 a CuInSe2 light absorbing layer (5).
 USE/ADVANTAGE - Super-straight or tandem cell. Prevents toxic
 environmental pollution at high temp. e.g. in case of fire.
 Dwg.4/6
 FS EPI

L40 ANSWER 44 OF 48 JAPIO COPYRIGHT 2001 JPO
AN 1982-055521 JAPIO
TI PRODUCTION OF **THIN FILM** MAGNETIC HEAD
IN KAWAKAMI HIROJI; KICHISE MITSUO
PA HITACHI LTD, JP (CO 000510)
PI JP 57055521 A 19820402 Showa
AI JP1980-130673 (JP55130673 Showa) 19800922
SO PATENT ABSTRACTS OF JAPAN, Unexamined Applications, Section: P, Sect. No. 128, Vol. 6, No. 1291, P. 159 (19820715)
IC ICM (3) G11B005-12
ICS (3) G11B005-42
AB PURPOSE: To prevent the damage due to a contact of a recording medium for a magnetic circuit wound by a conductor, by adhering a protective matter with an electrostatic process to a magnetic head made of a **thin film** magnetic material.
CONSTITUTION: A protective matter 1 is directly adhered with an electrostatic process to a **substrate** 5 containing a **thin film** magnetic head 4. First, the adhering surface of the matter 1 composed of silicon, titanium, aluminum, etc. is smoothed, and a groove 2 is cut on the smoothed surface. Then the glass 3 having a low melting **point** is accumulated on the bottom of the groove 2 to secure a depth of (d). On the other hand, a magnetic **thin film**, a conductor **thin film** and an insulator **thin film** are laminated on the **substrate** 5 with a height of 5-20. μ m to form a magnetic head 4. The **substrate** 5 is stuck on the matter 1 so that the head 4 is put into the groove 2 of the matter 1, and preheating is carried out at 300-350.**degree.C** to **soften** the **glass** 3. Then the high voltage of a prescribed polarity is applied to both the matter 1 and the **substrate** 5, and accordingly, the electrostatic adhesion progresses. The glass 3 is pressed to the head 4 and deformed as shown in figure E. The **substrate** 5 uses silicate containing several % of lithium. As a result, the damage of the **substrate** 5 which is caused by the friction with a recording medium can be avoided.

L40 ANSWER 23 OF 48 JAPIO COPYRIGHT 2001 JPO
AN 1996-186195 JAPIO
TI PACKAGE FOR ELECTRONIC PART
IN HORIUCHI MICHIO; MIYAGAWA HIROSHI; HARAYAMA YOICHI
PA SHINKO ELECTRIC IND CO LTD, JP (CO 416101)
PI JP 08186195 A 19960716 Heisei
AI JP1994-328768 (JP06328768 Heisei) 19941228
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 96, No. 7
IC ICM (6) H01L023-12
ICS (6) H01L023-13; (6) H01L023-522
AB PURPOSE: To achieve a high-density wiring by using **glass** of which **softening point** is equal to or less than a specific **temperature** as a main constituent and forming and welding a glass layer where a conductor wiring penetrates in thickness direction on a ceramic **substrate** and then providing an external connection terminal on the surface.
CONSTITUTION: A glass layer 14a where a conductor wiring 12 penetrates in thickness direction and the softening **point** is equal to or less than 950.**degree.C** is welded to a ceramic **substrate** 10.
Also, a metal ball 16 as an external connection terminal is sealed to a conductor wiring 12 which is exposed to the surface of the glass layer 14a. A plane wiring pattern 20 is formed on the surface of the **substrate** 10 and a part 20a is formed on an inner wiring pattern sandwiched by the **substrate** 10 and the glass layer 14a and then a part 20b is formed on a wiring pattern exposed in a cavity 18. Then, a semiconductor element 22 is mounted on the **substrate** 10 of the cavity 18 and the semiconductor element 22 and the exposed wiring pattern 20b are electrically connected to a wire 24, thus welding the glass layer 14a on the **substrate** 10 and forming a pattern according to a **thin film** in the interior and hence achieving a high-density wiring.

L13 ANSWER 12 OF 16 HCAPLUS COPYRIGHT 2001 ACS
 AN 1980:86943 HCAPLUS
 DN 92:86943
 TI **Thin film** and glass sheet laminate
 IN Kirkpatrick, Allen R.
 PA Spire Corp., USA
 SO U.S., 5 pp.
 CODEN: USXXAM
 DT Patent
 LA English
 IC B29C019-02; B32B031-00
 NCL 156230000
 CC 76-13 (Electric Phenomena)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	US 4179324	A	19791218	US 1977-855418	19771128
AB	<p>A thin film (e.g. of a semiconductor) and glass sheet laminate is fabricated by depositing the film onto a temporary substrate (with a carbonaceous release layer) by a deposition process, superposing a glass sheet on the film, exposing the structure to a thermal environment which does not exceed the softening point of the glass, electrostatically bonding the glass and film, and removing the temporary substrate. The electrostatic bonding includes exposure to a thermal environment, i.e. from .apprx.300.degree. to the softening point of the glass sheet (e.g. 500-700.degree.), application of an elec. potential (100-10,000 V, with glass biased neg.) across the glass and film, and application of pressures of 100-1000 psi. The bond formation may involve ion-induced chem. bonding at the interface. The film can be processed, e.g. annealed, recrystd., diffused, on the temporary substrate, before bonding to the glass. After bonding and temporary substrate removal, the other film surface can be processed.</p>				
ST	silicon glass laminate				
IT	Carbonaceous materials				
	RL: USES (Uses) (as release layer in prodn. of laminates from silicon films and glass sheets using temporary substrate)				

L13 ANSWER 1 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:381696 HCAPLUS
TI Low-temperature epitaxial thickening of sub-micron poly-Si seeding layers
on glass made by aluminium-induced crystallisation
AU Harder, N.-P.; Xia, J. A.; Oelting, S.; Nast, O.; Widenborg, P.; Aberle,
A. G.
CS Photovoltaics Special Research Centre, University of New South Wales,
Sydney, NSW 2052, Australia
SO Conf. Rec. IEEE Photovoltaic Spec. Conf. (2000), 28th, 351-354
CODEN: CRCNDP; ISSN: 0160-8371
PB Institute of Electrical and Electronics Engineers
DT Journal
LA English
CC 52 (Electrochemical, Radiational, and Thermal Energy Technology)
AB The formation of device-grade polycryst. silicon (poly-Si) films on std.
glass at low temp. (i.e., below the **softening point** of
the **glass**) using simple and fast processes is one of the major
challenges for low-cost **thin-film** solar cells. In
this paper, we report what is believed to be the first successful
realization of thick (.apprx.5 .mu.m), large-grained (.apprx.5 .mu.m),
continuous poly-Si films on glass at $T < 650.^{\circ}\text{C}$. This
technol. breakthrough has been achieved by using ion-assisted deposition
at $630.^{\circ}\text{C}$ for epitaxially thickening a thin (.apprx.0.4
.mu.m) seeding layer made on glass by aluminum-induced crystn.
RE.CNT 17

L13 ANSWER 8 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1993:675071 HCAPLUS
DN 119:275071
TI Investigation of polycrystalline silicon deposition on glass substrates
AU Shi, Zhengrong; Young, Trevor L.; Zheng, Guang Fu; Green, Martin A.
CS Cent. Photovoltaic Devices Syst., Univ. New South Wales, Kensington, 2033, Australia
SO Sol. Energy Mater. Sol. Cells (1993), 31(1), 51-60
CODEN: SEMCEQ; ISSN: 0927-0248
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 75, 76
AB Borosilicate glass was chosen as substrate for soln. growth of Si at low temps. due to its potential role as the substrate for a solar module. Several approaches were used to deposit polycryst. Si layer from soln. onto glass substrates, namely, Si particle seeded growth, growth on .alpha.-Si coated glass substrates, and growth on bare glass from the solns. contg. Al and Mg. Large-grain polycryst. Si crystals were grown on glass substrates previously seeded by Si particles. Continuous Si **thin films** were deposited onto .alpha.-Si coated glass substrates. For the third approach, impinging growth of Si layers was obtained on sandblasted glass substrates from solns. contg. Al and Mg at <600.**degree.**, if the concn. of Al and Mg in the soln. and the contact time between the soln. and the substrate are appropriately adjusted. Large-grain continuous Si **thin films** with an area of 10 cm² were also grown on **glass** substrates at temps. close to the **softening points** of the **glass**. The obtained **thin-film** structures have very good chem. and mech. stability. These characteristics are consistent with the requirements for high-performance Si solar cells.
ST silicon polycryst deposition borosilicate glass substrate; solar cell silicon deposition glass substrate
IT Photoelectric devices, solar
(silicon for, deposition of polycryst., on borosilicate glass substrate, methods for)
IT Glass, oxide

L18 ANSWER 3 OF 6 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:2013 HCAPLUS
DN 134:200977
TI **Micro-mechanical** deformation analysis of surface
laminar circuit in organic flip-chip package: An experimental study
AU Han, B.; Kunthong, P.
CS Department of Mechanical Engineering, University of Maryland, College
Park, MD, 20742, USA
SO J. Electron. Packag. (2000), 122(4), 294-300
CODEN: JEPAE4; ISSN: 1043-7398
PB American Society of Mechanical Engineers
DT Journal
LA English
CC 76-3 (Electric Phenomena)
Section cross-reference(s): 38, 56
AB Thermo-mech. deformations of microstructures in a surface laminar circuit
(SLC) substrate are quantified by microscopic moire interferometry. Two
specimens are analyzed; a bare SLC substrate and a flip chip package
assembly. The specimens are subjected to a uniform thermal loading of
.DELTA.T = -70.degree. and the microscopic displacement fields
are documented at the identical region of interest. The nano-scale
displacement sensitivity and the microscopic spatial resoln. obtained from
the expts. provide a faithful account of the complex deformation of the
surface laminar layer and the embedded microstructures. The displacement
fields are analyzed to produce the deformed configuration of the surface
laminar layer and the strain distributions in the microstructures. The
high modulus of underfill produces a strong coupling between the chip and
the surface laminar layer, which produces a DNP-dependent shear
deformation of the layer. The effect of the underfill on the deformation
of the microstructures was studied and its implications on the package
reliability are discussed.
ST microdeformation laminar circuit flip chip
IT Fiber-reinforced composites
Fillers

L18 ANSWER 4 OF 6 HCAPLUS COPYRIGHT 2001 ACS
AN 1994:259013 HCAPLUS
DN 120:259013
TI Thermal mismatch strain in anodically bonded silicon and glass
AU Sooriakumar, K.; Meitzler, A. H.; Haeberle, R. J.; Artz, B. E.; Cathey, L. W.; Taher, I. I.
CS Electron. Div., Ford Mot. Co., Dearborn, MI, 48121, USA
SO Proc. - Electrochem. Soc. (1993), 93-29(Semiconductor Wafer Bonding: Science, Technology, and Applications), 225-9
CODEN: PESODO; ISSN: 0161-6374
DT Journal
LA English
CC 76-14 (Electric Phenomena)
AB A no. of microsensors are based on anodically bonding silicon wafers to wafers of Corning 7740 glass. Most of these sensors are electromech. devices that are very susceptible to any strain caused by either fabrication or packaging. When an anodic bond is formed at an elevated temp. and the bonded structure allowed to return to room temp., the whole structure distorts [1]. The silicon contracts more than the **glass** and the structure **bends** accordingly. The strain that is introduced is attributable to two major causes: (a) mismatch in the temp. coeffs. of expansion and (b) displacement of ions that occurs during the bonding operation. Most of the strain is attributable to the mismatch in expansion coeffs., but the ion displacement contribution is present and becomes significant at bonding temps. above 450.**degree.C.**
ST silicon glass bonding **micromech** sensor
IT Strain
(at silicon/glass bonding, in **micromech.** sensors)
IT Glass, oxide
RL: USES (Uses)

L18 ANSWER 5 OF 6 HCAPLUS COPYRIGHT 2001 ACS

AN 1992:512448 HCAPLUS

DN 117:112448

TI Correlations between molecular weight, morphology and **micromechanical** deformation processes of polyethylenes

AU Michler, G. H.

CS Dep. Phys., Tech. Univ. Merseburg, Merseburg, Germany

SO Colloid Polym. Sci. (1992), 270(7), 627-38

CODEN: CPMSB6; ISSN: 0303-402X

DT Journal

LA English

CC 36-5 (Physical Properties of Synthetic High Polymers)

AB The influence of mol. wt. on morphol. and **micromech.** deformation processes of polyethylene (I) was studied by conventional transmission and high-voltage electron microscopy. Fractions with very narrow mol.-wt. distributions and com. samples of high-d. I for mol. wts. 104-1.6 .times. 10⁶ were studied. With increasing mol. wt. there was a change in the morphol. from sheaflike structures and banded spherulites to small bundles of parallel lamellae or randomly distributed lamellae. For mol. wts. >10⁵, the thickness of the lamellae increased more slowly than the thickness of the interlamellar, amorphous layers. During uniaxial tension the apparently homogeneous transformation to a c-texture consisted on a microscopic scale of different deformation steps, including twisting of the lamellae and the breaking up of the lamellae into shorter pieces or microblocks. Often, small regions were visible with a locally larger elongation than in the surrounding regions (locally heterogeneous deformation). The deformation steps were changed by modifications of the mobility of the mols. in the **amorphous** phase, including **deformation** at different temps. (20-110.degree.) and annealing below the melting temp.

ST polyethylene mol wt morphol deformation

IT Spherulites

L18 ANSWER 6 OF 6 HCAPLUS COPYRIGHT 2001 ACS
AN 1989:535318 HCAPLUS
DN 111:135318
TI Solvent-induced embrittlement in a crystallizable polyarylate
AU Berger, Larry L.
CS Cent. Res. Dev. Dep., E. I. DuPont de Nemours and Co., Inc., Wilmington,
DE, 19898, USA
SO J. Polym. Sci., Part B: Polym. Phys. (1989), 27(8), 1629-47
CODEN: JPBPEM; ISSN: 0887-6266
DT Journal
LA English
CC 37-5 (Plastics Manufacture and Processing)
AB The effects of solvent-induced crystn. on the **micromech.**
properties of thin films of bisphenol A-isophthalic acid copolymer (I)
were studied. Under uniaxial extension **amorphous** I
deformed exclusively by shear **deformation** with no
evidence of crazing. Upon exposure to MEK, vapor, or liq., I crystallizes
and is subsequently embrittled. TEM results clearly show that this
embrittlement results from a transition in plastic deformation mechanism
from shear yielding to crazing. A detailed examn. of the samples revealed
that the crazes formed preferentially within the noncryst. regions and
that the craze tips followed a complex trajectory around the crystallites.
In some cases the craze tip advance deviated by as much as $\pm 30^\circ$
degree. from a direction normal to the tensile axis. Because
crazes are inherently more susceptible to forming cracks than shear
deformation zones, crystn. reduces the fracture toughness of the polymer.
This type of embrittlement, via a transition in plastic deformation
mechanism, is believed to be a general behavior for solvent-crystallizable
thermoplastics.
ST polyarylate solvent induced embrittlement crazing; bisphenol A copolymer

L13 ANSWER 4 OF 16 HCAPLUS COPYRIGHT 2001 ACS
 AN 1999:49064 HCAPLUS
 DN 130:113953
 TI Heat-resistant heat ray-shielding glasses and their manufacture
 IN Kinoshita, Kenichi; Takahira, Masaru
 PA Narumi China Corp., Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C03C017-245
 ICS C03C004-08; C03C010-14
 CC 57-1 (Ceramics)
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11011982	A2	19990119	JP 1997-185883	19970625
AB	The title glasses are manufd. from glass substrates with low thermal expansion and softening point .gtoreq.650. degree . by heating at .gtoreq.650. degree . and forming tin oxide-base thin films by spraying or CVD method simultaneously. The heat-resistant glasses are also claimed and have good heat ray-shielding property under high temp.				
ST	tin oxide coating spraying CVD glass; glass heat resistance tin oxide coating; heat ray shielding glass manuf				
IT	Impact-resistant materials (heat-resistant coatings; manuf. of heat ray-shielding glasses with tin oxide-base coatings by spraying or CVD method)				
IT	Heat-resistant coatings (impact-resistant; manuf. of heat ray-shielding glasses with tin oxide-base coatings by spraying or CVD method)				
IT	Chemical vapor deposition Heat shields Spraying (manuf. of heat ray-shielding glasses with tin oxide-base coatings by spraying or CVD method)				

L13 ANSWER 5 OF 16 HCAPLUS COPYRIGHT 2001 ACS
 AN 1998:661787 HCAPLUS
 DN 129:283525
 TI Photosensitive conductive paste and production of electrode
 IN Okino, Akiko; Masaki, Takaki; Masata, Junji
 PA Toray Industries, Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C03C008-18
 ICS C03C003-066; C04B041-88; C23C024-08; G03F007-004; H01J009-02
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 57, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10273338	A2	19981013	JP 1997-78197	19970328
AB	The title conductive paste contains (1) a conductive powder, (2) a glass frit having a glass transition point of 400-500.degree., a glass softening point of 450-550.degree., an av. particle size of 0.5-1.4 .mu.m, a 90% particle size of 1-3 .mu.m, a top size of .ltoreq.4.5 .mu.m, and a thermal expansion coeff. at 50-400.degree. (.alpha.50-400) of 75-90 .times. 10-7/.degree.K, and (3) a photosensitive org. component. The paste is coated on a substrate and is subjected to photolithog. process to form patterns followed by baking to give electrodes. The paste provides high resoln. patterns and thin film electrodes with good adhesion to ceramic and glass substrates and low resistance, and is useful for plasma display panels.				
ST	photosensitive conductive paste glass frit; plasma display panel photoconductive paste electrode				
IT	Frits Plasma display panels (photoconductive paste contg. conductive powder, glass flit, and photosensitive org. component)				
IT	Aluminoborosilicate glasses				

L13 ANSWER 10 OF 16 HCAPLUS COPYRIGHT 2001 ACS

AN 1991:148910 HCAPLUS

DN 114:148910

TI Low-temperature sinterable ceramic compositions, high-density glass-ceramics, and manufacture of ceramic substrates and multilayer glass-ceramic structures

IN Wingefeld, Gerd; Aldinger, Fritz

PA Hoechst A.-G., Fed. Rep. Ger.

SO Ger. Offen., 7 pp.

CODEN: GWXXBX

DT Patent

LA German

IC ICM C03C014-00

ICS C03C010-00; C03C010-08

ICA H01L023-06; H01L023-14

CC 57-2 (Ceramics)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	DE 3923491	A1	19910124	DE 1989-3923491	19890715
	JP 03054163	A2	19910308	JP 1990-187820	19900716
PRAI	DE 1989-3923491		19890715		

AB The ceramic compns. consist of 40-90 wt.% finely divided refractory material having coeff. of thermal expansion (.alpha.) 5 .times. 10⁻⁶/K (0-400.degree.) and 10-60 wt.% finely divided glass having softening point 650-850.degree., .alpha. corresponding to that of the refractory material, and dielec. const. (.epsilon.) <5 (at 106 Hz and 20.degree.). The high-d. glass-ceramics having .epsilon. 4-6.5 consist of finely divided polycryst. refractory material consisting of MgO 14.7-16.1, Al₂O₃ 36.8-40.8, and SiO₂ 43.8-47.8 wt.%, having .alpha. .ltoreq.5 .times. 10⁻⁶/K, which is dispersed in a borosilicate or Li borosilicate glass matrix having .epsilon., .alpha. and softening point as above. The substrates are manufd. by mixing the above ingredients with org. auxiliary materials, forming thin films of the mixts., slowly heating the green films to remove the org. material, and sintering the films at 900-1000.degree.. The multilayer structures are manufd. by applying a metalizing paste contg. metal powder, binder, and solvent, to .gtoreq.2 green films, stacking the films and treating the films as above. Thus, a mixt. of cordierite and borosilicate glass in wt. ratio 80:20 was comminuted in EtOH, and the powder was sintered at 1098.degree. (shrinkage 12.3%) to obtain a glass-ceramic material having d. 2.17 g/cm³, .epsilon. 4.4, and .alpha. 1.7 .times. 10⁻⁶/K.

ST cordierite lithium borosilicate glass ceramic; multilayer glass ceramic

L13 ANSWER 7 OF 16 HCAPLUS COPYRIGHT 2001 ACS
AN 1994:634649 HCAPLUS
DN 121:234649
TI Growth of polycrystalline silicon **thin films** on glass
AU Shi, Zhengrong
CS Cent. Photovoltaic Devices Systems, Univ. New South Wales, Sydney, 2052, Australia
SO J. Mater. Sci.: Mater. Electron. (1994), 5(5), 305-9
CODEN: JSMEEV; ISSN: 0957-4522
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 75
AB Borosilicate glass was chosen as a substrate for soln. growth of Si due to its potential role as the superstrate of a solar module. The deposition of polycryst. Si on glass from solns. contg. Al or Mg is reported. Island growth was usually obtained when the deposition temp. was <750. **degree..** Large-grain, continuous, Si **thin films** with an area of 10 cm² were grown on **glass** substrates at temps. around the **softening points** of the **glass**.
The growth of Si on glass can be explained on the basis that the presence of Al and Mg in the soln. reduces SiO₂ and exposes Si on the glass surface. The Si-rich surface improves the wetting of the glass by the soln. and acts as seeding sites for Si nucleation. The periodic-regrowth technique was used to improve the quality of the polycryst. Si **thin films** deposited on the glass substrates. Periodic repetition of the melt-back and regrowth procedures removed the small-grained crystals, suppressed the rapid growth of crystals perpendicular to the substrate, and enhanced the growth of slower-growing crystals in the lateral direction. This process markedly improved the smoothness, the grain size, the crystal quality, and the (111) preferred orientation of the Si **thin films**. Diode characteristics were obtained for p-n junction devices made on these polycryst. Si **thin films** deposited on glass substrates.
ST growth polycryst silicon borosilicate glass; solar cell module silicon growth

L18 ANSWER 2 OF 6 HCAPLUS COPYRIGHT 2001 ACS
 AN 2001:183223 HCAPLUS
 DN 134:288032
 TI Phase transformations in sol-gel PZT thin films
 AU Eakin, D. P.; Norton, M. G.; Bahr, D. F.
 CS Mechanical and Materials Engineering, Washington State University,
 Pullman, WA, 99164-2920, USA
 SO Mater. Res. Soc. Symp. Proc. (2000), 623(Materials Science of Novel
 Oxide-Based Electronics), 185-190
 CODEN: MRSPDH; ISSN: 0272-9172
 PB Materials Research Society
 DT Journal
 LA English
 CC 75-1 (Crystallography and Liquid Crystals)
 Section cross-reference(s): 76
 AB Thin films of PZT were deposited onto platinized and bare single crystal
 NaCl using spin coating and sol-gel precursors. These films were then
 analyzed using in situ heating in a transmission electron microscope. The
 results of in situ heating are compared with those of an ex situ heat
 treatment in a std. furnace, mimicking the heat treatment given to entire
 wafers of these materials for use in **MEMS** and ferroelec.
 applications. Films **transform** from **amorphous** to
 nanocryst. over days when held at room temp. While chem. variations are
 found between films crystd. in ambient conditions and films crystd. in the
 vacuum conditions of the microscope, the resulting crystal structures
 appear to be insensitive to these differences. Significant changes in
 crystal structure are found at 500.degree., primarily the change
 from largely amorphous to the beginnings of clearly cryst. films. Crystn.
 does occur over weeks at room temp. in these films. Structural changes
 are more modest in these films when heated in the TEM than those obsd. on
 actual wafers. The presence of Pt significantly influences both the
 resulting structure and morphol. in both in situ and ex situ heated films.
 Without Pt present, the films appear to form small, 10 nm grains
 consisting of both cubic and tetragonal phases, whereas in the case of the
 Pt larger, 100 nm grains of a tetragonal phase are formed.
 ST phase transition sol gel deposition lead titanate zirconate film
 IT Crystallization
 (of sol-gel lead titanate zirconate thin films grown on platinized and
 bare single crystal NaCl using spin coating and sol-gel precursors with
 time and heating)
 IT Sol-gel processing
 (phase transformations in sol-gel lead titanate zirconate thin films
 grown on platinized and bare single crystal NaCl using spin coating and
 sol-gel precursors)
 IT Coating process
 (spin; phase transformations in sol-gel lead titanate zirconate thin

L18 ANSWER 1 OF 6 HCAPLUS COPYRIGHT 2001 ACS
AN 2001:384570 HCAPLUS
TI Fabrication of multi-layered SiCN ceramic **MEMS** using
photo-polymerization of precursor
AU Liew, Li-Anne; Luo, Ruiling; Liu, Yiping; Zhang, Wenge; An, Linan; Bright,
Victor M.; Dunn, Martin L.; Daily, John W.; Raj, Rishi
CS NSF Center for Advanced Manufacturing and Packaging of Microwave, Optical,
Department of Mechanical Engineering, University of Colorado, Boulder, CO,
80309-0427, USA
SO IEEE Int. Conf. Micro Electro Mech. Syst., Tech. Dig., 14th (2001), 86-89
Publisher: Institute of Electrical and Electronics Engineers, New York, N.
Y.
CODEN: 69BHXI
DT Conference
LA English
CC 76 (Electric Phenomena)
AB This paper describes the use of photo-polymn. of precursor as a versatile
and cost-effective means of fabricating SiCN ceramic **MEMS**. SiCN
is a new class of polymer-derived ceramics whose starting material is a
liq.-phase polymer. By adding a photo-initiator to the precursor,
photolithog. patterning of the precursor can be accomplished by UV
exposure. The resulting solid polymer structures are then crosslinked
under isostatic pressure, and pyrolyzed. Thermal decompn.
transforms the polymer to an **amorphous** ceramic capable
of withstanding over 1500 .degree.C. By adding and curing
successive layers of liq. polymer precursor on top of one another,
multilayered ceramic structures can be easily fabricated. The use of
photo-polymn. can also be used to make thin, membrane-like ceramic
structures. By combining photo-polymn. with other inhouse developed
techniques such as polymer-based bonding and flip-chip bonding, three SiCN
MEMS devices for high temp. applications have been fabricated: an
electrostatic actuator, a pressure transducer, and a combustion chamber.
These represent a wide range of **MEMS**, demonstrating the
versatility of this technique.
RE.CNT 6
RE

6/26/01

L40 ANSWER 17 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
AN 1972-71091T [44] WPIX
TI Resistance compsn - contg glass frit and palladium.
DC L03 V01
PA (SHOE) SHOEI CHEMICAL IND CO LTD
CYC 1
PI JP 47042917 B (197244)*
PRAI JP 1968-17653 19680319
IC H01C000-00
AB JP 72042917 B UPAB: 19930831
Compsn comprises ≥ 1 precious metal and glass frit contg. 0.5 to 25 wt.%
of Pd. The **glass** frit has **softening pt** of
300 to 700 **degrees** C. Raw materials of the frit are selected
from silicic acid, alumina, boric acid, lead, oxide, phosphoric acid, etc.
The precious metals are selected from Ag, Pd, Au, **Pt**, Rh,
Ru, Ir and Os. Compsn. is coated on an insulating **substrate** to
obtain a **thin film** resistor.
FS CPI EPI
FA AB
MC CPI: L03-B01C

L49 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2001 ACS
 AN 1998:661787 HCAPLUS
 DN 129:283525
 TI Photosensitive conductive paste and production of electrode
 IN Okino, Akiko; Masaki, Takaki; Masata, Junji
 PA Toray Industries, Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C03C008-18
 ICS C03C003-066; C04B041-88; C23C024-08; G03F007-004; H01J009-02
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 57, 76
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10273338	A2	19981013	JP 1997-78197	19970328
AB	The title conductive paste contains (1) a conductive powder, (2) a glass frit having a glass transition point of 400-500.degree., a glass softening point of 450-550.degree., an av. particle size of 0.5-1.4 .mu.m, a 90% particle size of 1-3 .mu.m, a top size of .ltoreq.4.5 .mu.m, and a thermal expansion coeff. at 50-400.degree. (.alpha.50-400) of 75-90 .times. 10-7/.degree.K, and (3) a photosensitive org. component. The paste is coated on a substrate and is subjected to photolithog. process to form patterns followed by baking to give electrodes. The paste provides high resoln. patterns and thin film electrodes with good adhesion to ceramic and glass substrates and low resistance, and is useful for plasma display panels.				
ST	photosensitive conductive paste glass frit; plasma display panel photoconductive paste electrode				
IT	Frits Plasma display panels (photoconductive paste contg. conductive powder, glass flit, and photosensitive org. component)				
IT	Aluminoborosilicate glasses Borosilicate glasses RL: DEV (Device component use); USES (Uses) (photoconductive paste contg. conductive powder, glass flit, and photosensitive org. component)				
IT	1303-86-2, Boron oxide, uses 1304-28-5, Barium oxide, uses 1304-76-3, Bismuth oxide, uses 1313-59-3, Sodium oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconium oxide, uses 1344-28-1, Aluminum				

L53 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2001 ACS

AN 1947:19986 HCAPLUS

DN 41:19986

OREF 41:3997f-i

TI Optical plastics materials

AU Starkie, D.

SO British Plastics (1947), 19, 96-103

DT Journal

LA Unavailable

CC 31 (Synthetic Resins and Plastics)

AB The commonly used optical plastics materials are Transpex 1 (polymethyl methacrylate) (I) and Transpex 2 (polystyrene) (II). Optical properties of I and II, resp., are $n_D 20$ 1.4900 and 1.5900, relative dispersion $(n_D - 1)/(n_F - n_C)$, 57.5 and 31.0, reduction in intensity of visible light on passing through a 0.125-in. sheet, 8 and 10%, and effect of exposure to sunlight, no effect and slight yellowing after long exposure.

Phys. properties of I and II are listed. Plastic materials and glass for optical uses are compared. Plastic materials have the advantage of low d ., greater resistance to mech. and thermal shock, transmission in the ultraviolet region down to 2900 A., ease of handling with ordinary workshop equipment, and higher resistance to mold growth. They have the disadvantages of lower scratch resistance, low **softening point** (120.degree.) and distortion temp., lower thermal cond., and higher coeff. of expansion. The 2 established methods of manuf. of plastics optical components are (1) the compression molding method and (2) the surface-finishing method. Method (1) has been described in British Plastics 18, 219(1946) and Plastics, May 4, 1946, p. 27. Method (2) consists of casting a very **thin film** of polymer on a preformed part and molding in a glass mold. A glass mold permits light polymerization of the surface film. Optical mirrors can be made by deposition of a reflecting layer of Al in a vacuum chamber. Once molds are made optical parts with aspherical surfaces can be produced in quantity. Applications of plastic optical parts are discussed. Large lenses for the projection of the image in television receivers can be produced from I.

L53 ANSWER 1 OF 7 INSPEC COPYRIGHT 2001 IEE
AN 1972:391543 INSPEC DN A72040224
TI Amorphous semiconductors. (**Physical properties**).
AU Hamakawa, Y.
SO Oyo Buturi (May 1971) vol.40, no.5, p.552-9. 25 refs.
CODEN: OYBSA9 ISSN: 0369-8009
DT Journal
TC General Review
CY Japan
LA Japanese
AB The author discusses the **physical properties** of some new amorphous semiconductor materials consisting of chalcogen (S, Se and Te) glasses. These show the following advantages as compared with oxide glass. Their **softening point** is low, leakage to metals is good, their water and acid resistance is high but that to alkalis weak, the thermal expansion coefficient is high but because of their low **softening point**, they readily form **thin films** by vacuum sublimation and the incidence of cracking and peeling is low, and permeability to infra-red radiation is good. The electrical properties and the mobility gap, and the switch and memory properties are examined in some detail. The article concluded with a brief survey of the development of elements for practical use for electrons and for optical glasses.
CC A6140D Glasses; A6570 Thermal expansion and thermomechanical effects; A7000 Condensed matter: electronic structure, electrical, magnetic, and optical properties; A7220 Conductivity phenomena in semiconductors and insulators; A7820D Optical constants and parameters
CT AMORPHOUS STATE; ELECTRICAL CONDUCTIVITY OF SOLIDS; GLASS; LIGHT ABSORPTION; SEMICONDUCTORS; THERMAL EXPANSION

L40 ANSWER 2 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
 AN 1998-472913 [41] WPIX
 DNN N1998-369216 DNC C1998-142894
 TI Prepn. of **thin film** electroluminescence device - by
 multi-layering a transparent electrode, the first insulating layer, a
 luminescence layer consisting of calcium thiogallate, second insulating
 layer, and the second electrode, on a glass **substrate**.
 DC L03 X26
 PA (FJIE) FUJI ELECTRIC CO LTD
 CYC 1
 PI JP 10199675 A 19980731 (199841)* 5p H05B033-10
 ADT JP 10199675 A JP 1997-2587 19970110
 PRAI JP 1997-2587 19970110
 IC ICM H05B033-10
 ICS C09K011-00; C09K011-02; C09K011-62; H05B033-14; H05B033-20
 AB JP 10199675 A UPAB: 19981014
 Prepn. method of the **thin film** EL device is new. In
 prepn. of the **thin film** EL device formed by
 multi-layering a transparent electrode, the first insulating layer, a
 luminescence layer consisting of calcium thiogallate, the second
 insulating layer, and the second electrode, on a glass **substrate**
 , in order; the calcium thiogallate layer is deposited by sputtering, then
 heat- treatment is done through **temp.** elevation rate of 0.25-50
deg. C/sec, up to 800- 900 **deg.** C, and keeping the layer
 at the **temp.** for 1-15 min.
 USE - The method is used for prepn. of the **thin**
film EL device to be used for thin display equipments.
 ADVANTAGE - CaGa₂S₄ in amorphous state can be converted into luminous
 single phase calcium thiogallate, without **deformation** of the
glass substrate. **Temp.** of the heat-treatment
 can be lowered up to 650 **deg.** C, lower than the
softening pt. of the **glass substrate**
 .
 Dwg.0/4

L40 ANSWER 27 OF 48 JAPIO COPYRIGHT 2001 JPO
AN 1994-104280 JAPIO
TI **THIN FILM** TRANSISTOR AND MANUFACTURE THEREOF
IN YOSHINOUCHI ATSUSHI; MORITA TATSUO; TSUCHIMOTO SHUHEI
PA SHARP CORP, JP (CO 000504)
PI JP 06104280 A 19940415 Heisei
AI JP1992-307350 (JP04307350 Heisei) 19921117
SO PATENT ABSTRACTS OF JAPAN, Unexamined Applications, Section: E, Sect. No. 1577, Vol. 18, No. 372, P. 113 (19940713)
IC ICM (5) H01L021-336
ICS (5) H01L029-784; (5) H01L021-265
AB PURPOSE: To allow easy manufacture of a **thin film** transistor on a **glass substrate** having a low **softening point** by performing ion implantation of the impurities on a polycrystalline silicon **thin film** so as to set up a **substrate temperature** of a manufacturing process after ion implantation not exceeding a fixed value.
CONSTITUTION: A polycrystalline silicon **thin film** 14 for forming a channel and the source-drain region of a **thin film** transistor is formed on the surface of an insulating **substrate** 13 consisting of a glass **substrate**. Thereon a gate insulating film 17, further thereon a polycrystalline silicon **thin film** 18 for forming a transistor gate is formed. Ions consisting of the impurity element ions and hydrogen ions are applied to the **thin film** transistor before ion implantation for performing ion implantation so that a source part 15 and a drain part 16 are formed by self-alignment and doping of the impurity elements while making a gate part 11 of low resistance. A insulating film 19 is formed by film formation of SiO₂ by an APC method at a **substrate temperature** not exceeding 450.degree.C.

L40 ANSWER 13 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD
 AN 1984-173188 [28] WPIX
 DNN N1984-129042 DNC C1984-073152
 TI Photo magnetic disc with easy perpendicular magnetisation - produced by
 forming magnetic **thin film** over tracking groove side
 of low m.pt. glass **substrate**.
 DC A85 L03
 PA (MATU) MATSUSHITA ELEC IND CO LTD
 CYC 1
 PI JP 59094256 A 19840530 (198428)* 3p
 JP 05057661 B 19930824 (199336) G11B011-10
 ADT JP 59094256 A JP 1982-204073 19821119; JP 05057661 B JP 1982-204073
 19821119
 FDT JP 05057661 B Based on JP 59094256
 PRAI JP 1982-204073 19821119
 IC G11B005-62; G11B011-10; G11C013-06
 AB JP 59094256 A UPAB: 19930925

Molten low m.pt. glass is cast over the surface of polyimide
 resin stamper having previously formed grooves opposing the tracking
 grooves. This is cooled, the **substrate** with tracking grooves is
 sepd. from the stamper, and a magnetic **thin film** is
 formed over the surface of the tracking groove side of the
substrate.

Low m.pt. glass of softening pt
 . 377 deg.C is placed in a crucible and heated to 480
 deg.C in a heating furnace to melt the glass. The melted glass is
 cast through a pipe equipped with heater over the surface of a stamper set
 in a disc-forming furnace maintained at 450 deg.C. After the
 surface of the cast glass flattened, it is gradually cooled and then sepd.
 from the stamper. Then over the surface of tracking grooves of the glass a
thin film of a given metal or alloy is formed by vacuum
 deposition or sputtering.

ADVANTAGE - The disc does not release gas, unlike photopolymer
substrates.

0/4

L40 ANSWER 10 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1989-236349 [33] WPIX

DNN N1989-179932 DNC C1989-105228

TI Magnetic disk having improved durability - comprises ferromagnetic metallic **thin film** on non-magnetic layer and interposed glass layer.

DC L03 T03

PA (HITM) HITACHI MAXELL KK

CYC 1

PI JP 01169719 A 19890705 (198933)* 5p

ADT JP 01169719 A JP 1987-327981 19871224

PRAI JP 1987-327981 19871224

IC G11B005-70

AB JP 01169719 A UPAB: 19930923

Magnetic disk comprises a magnetic recording layer of ferromagnetic metallic **thin film** formed on a non-magnetic layer, and a glass layer of less than 600 **deg.C** of softening **point** as an undercoat layer formed between the non-magnetic **substrate** and the magnetic recording layer.

Opt. the magnetic layer is heated at a **temp.** more than the crystal transformation **point** of the ferromagnetic metal, cooled and again heated and cooled while impressing the magnetic field. The heat treatments are carried out at a **temp.** between the **softening point** of the **glass** and the crystal **transformation point** of the ferromagnetic metal.

ADVANTAGE - Magnetic disk has improved magnetic property and durability.

In an example, a crystal glass **substrate** (3.5 inches dia.) is coated with 500 Angstroms thick PbO **glass** (**softening point** = 350 **deg.C**) as an undercoat by sputtering, and 500 Angstroms thick magnetic recording layer (20Ni-80Co) is coated on it by sputtering to form a magnetic disk. The magnetic disk is heated at 800 **deg.C** in 5x10 power (-7) Torr vacuum for 1 hour and cooled to room **temp.**, heated at 600 **deg.C** in 1x10 power (-2) Torr vacuum while impressing 3000 Oe magnetic flux in a circular direction of the disk and cooled at a rate of 30 **deg.C/min**. The durability of the disk is 2.0 kpass.

0/0

FS CPI EPI

FA AB

L40 ANSWER 8 OF 48 WPIX COPYRIGHT 2001 DERWENT INFORMATION LTD

AN 1992-170525 [21] WPIX

DNN N1992-128489 DNC C1992-078295

TI Forming glass **substrate** for curved liquid crystal cell - by forming indium tin oxide films on glass **substrates**, contacting 2 **substrates** so films face inside, and moulding.

DC L01 L03 P81 U14

PA (TOYT) TOYOTA JIDOSHA KK

CYC 1

PI JP 04104222 A 19920406 (199221)* 5p

ADT JP 04104222 A JP 1990-223398 19900824

PRAI JP 1990-223398 19900824

IC G02F001-13

AB JP 04104222 A UPAB: 19931006

Glass **substrate** for curved liq. crystal (LC) is obtd. by forming ITO **thin film** on a glass **substrate**; contacting two of these glass **substrates** with ITO inside; and moulding due to their own weight. Film thickness of ITO is 200-1000 Angstroms, and the moulding is at 580-650 **deg.** C for 15-210 minutes.

In an example, a glass **substrate** for curved LC was prepd. by forming 1000 A thick SiO₂ and 200 A thick ITO films on a soda lime glass (**softening pt.** 530 **deg.** C, 300x180x0.7mm) by sputtering. Two of these glass **substrates** were ultrasonic wave cleaned and contacted with each other so the ITO films face each other while aspirating air at the inside until an interference fringe was observed, then set on a die with concaved curve (radius curvature of 180 mm), heated for 60 minutes at 600 **deg.** C, cooled to 500 **deg.** C at rate of 100 **deg.** C/hours and cooled at room **temp.** (1-3/4) 1-3/4

FS CPI EPI GMPI

FA AB; GI

L40 ANSWER 41 OF 48 JAPIO COPYRIGHT 2001 JPO
AN 1986-236009 JAPIO
TI COMPOSITE **SUBSTRATE** FOR **THIN FILM** MAGNETIC
HEAD
IN WADA TOSHIAKI; NAKAOKA JUNICHI
PA SUMITOMO SPECIAL METALS CO LTD, JP (CO 330335)
PI JP 61236009 A 19861021 Showa
AI JP1985-77127 (JP60077127 Showa) 19850411
SO PATENT ABSTRACTS OF JAPAN, Unexamined Applications, Section: P, Sect. No.
555, Vol. 11, No. 79, P. 74 (19870311)
IC ICM (4) G11B005-31
ICS (4) H01F010-26
AB PURPOSE: To produce easily a laminated **thin film**
magnetic head by interposing a **glass** layer whose
softening point and thermal expansion coefficient are
specified between soft ferrite layers having specified surface roughness
to obtain the title 3-layered **substrate**.
CONSTITUTION: A glass layer having 400-850.**degree**.C softening
point and a thermal expansion coefficient which is different from
the thermal expansion coefficient of a soft ferrite layer by
.ltoreq.1.times.10-6/**degree** is interposed between the soft
ferrite layers having the outer principal plane having .ltoreq.200.ANG.
surface roughness to constitute 3 layers of soft ferrite, glass and soft
ferrite. Since the composite **substrate** has the glass layer
between the soft ferrite layers, the **substrate** is magnetically
separated and a magnetic circuit can be formed respectively on the soft
ferrite layer surfaces of both principal planes of the **substrate**
. Consequently, an erasing head 30 is formed one of the soft ferrite layer
1 surfaces of the composite **substrate** 10 and a bulk-type
thin film magnetic head for a floppy disk, etc., wherein
a recording and reproducing head 31 is formed can be easily made on the
other soft ferrite layer 2 surface.